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GODDARD SPACE FLIGHT CENTER

GREENBELT, MD.

SPACE OPERATIONS CONTROL CENTER
GODDARD SPACE FLIGHT CENTER
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

VOLUME 5 NO. 2

JANUARY 31, 1965

SATELLITE SITUATION REPORT

THE FOLLOWING REPORT REFLECTS DATA COMPUTED AND COMPILED BY
THE GODDARD SPACE FLIGHT CENTER, NORAD, AND SMITHSONIAN ASTROPHICAL
OBSERVATORY AS OF 1200Z ON JANUARY 31, 1965.

OBJECTS IN ORBIT

OBJECT	CODE NAME	CATALOGUE NUMBER	SOURCE	LAUNCH	NODAL PERIOD	INCLI- NATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)
1958 LAUNCHES									
ALPHA 1	EXPLORER 1	004	US	1 FEB	104.3	33.18	1579	341	
BETA 1	ROCKET BODY	016	US	17 MAR	138.4	34.25	4309	659	
BETA 2	VANGUARD 1	005	US	17 MAR	134.0	34.23	3939	649	
1959 LAUNCHES									
ALPHA 1	VANGUARD 2	011	US	17 FEB	125.4	32.87	3286	555	
ALPHA 2	ROCKET BODY	012	US	17 FEB	129.7	32.91	3653	560	
ETA 1	VANGUARD 3	020	US	18 SEP	129.8	33.33	3716	512	
MU 1	LUNIK 1	112	USSR	2 JAN	HELIOCENTRIC ORBIT				
NU 1	PIONEER 4	113	US	3 MAR	HELIOCENTRIC ORBIT				
IOTA 1	EXPLORER 7	022	US	13 OCT	101.1	50.32	1059	567	
IOTA 2	ROCKET BODY	023	US	13 OCT	100.9	50.29	1050	553	
1960 LAUNCHES									
ALPHA 1	PIONEER 5	027	US	11 MAR	HELIOCENTRIC ORBIT				
BETA 1	ROCKET BODY	028	US	1 APR	99.1	48.43	740	691	
BETA 2	TIROS 1	029	US	1 APR	99.2	48.40	742	697	
BETA 3	NONE	101	US	1 APR	97.9	48.50	703	610	
BETA 4	NONE	115	US	1 APR	99.9	48.16	806	699	
GAMMA 2	TRANSIT 1B	031	US	13 APR	93.8	51.21	574	346	
GAMMA 4	NONE	099	US	13 APR	96.7	51.25	728	476	
EPSILON 3	NONE	036	USSR	15 MAY	90.7	64.97	359	256	
ZETA 1	MIDAS 2	043	US	24 MAY	94.3	33.04	484	482	
ETA 1	TRANSIT 2A	045	US	22 JUN	101.6	66.71	1053	619	
ETA 2	GREB	046	US	22 JUN	101.6	66.71	1053	616	
ETA 3	ROCKET BODY	047	US	22 JUN	101.4	66.68	1033	617	
ETA 4		840	US	22 JUN	101.5	66.69	1049	615	
ETA 5		841	US	22 JUN	101.5	66.71	1051	610	

OBJECTS IN ORBIT				CATALOGUE				OBJECTS IN ORBIT				CATALOGUE			
OBJECT	CODE NAME	NUMBER	SOURCE	LAUNCH	NODAL PERIOD	INCLINATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)						
1960 LAUNCHES (CONT'D)															
IOTA 1	ECHO 1	049	US	12 AUG	114.1	47.28	1525	1302							
IOTA 2	ROCKET BODY	050	US	12 AUG	118.1	47.25	1681	1506							
IOTA 3	METAL OBJECT	051	US	12 AUG	118.2	47.25	1686	1517							
IOTA 4	METAL OBJECT	052	US	12 AUG	CURRENT ELEMENTS NOT MAINTAINED										
IOTA 5	METAL OBJECT	053	US	12 AUG	118.4	47.30	1684	1536							
NU 1	COURIER 1B	058	US	4 OCT	107.0	28.31	1213	962							
NU 2	ROCKET BODY	059	US	4 OCT	106.6	28.22	1208	923							
XI 1	EXPLORER 8	060	US	3 NOV	112.3	49.93	2246	417							
XI 2	ROCKET BODY	062	US	3 NOV	111.8	49.95	2205	415							
XI 3	NONE	069	US	3 NOV	109.1	49.37	1963	401							
XI 4	NONE	105	US	3 NOV	110.4	50.50	2070	421							
PI 1	TIROS 2	063	US	23 NOV	98.2	48.52	727	621							
PI 2	ROCKET BODY	064	US	23 NOV	98.1	48.51	720	615							
PI 3	NONE	074	US	23 NOV	98.2	48.53	724	616							
PI 4	NONE	075	US	23 NOV	98.3	48.51	731	623							
1961 LAUNCHES															
ALPHA 1	SAMOS 2	070	US	31 JAN	94.7	97.39	546	465							
ALPHA 2	METAL OBJECT	079	US	31 JAN	94.6	97.40	535	468							
GAMMA 1	VENUS PROBE	080	USSR	12 FEB	HELIOCENTRIC ORBIT										
DELTA 2	ROCKET BODY	082	US	16 FEB	118.5	38.86	2598	629							
DELTA 3	NONE	085	US	16 FEB	CURRENT ELEMENTS NOT MAINTAINED										
KAPPA 1	EXPLORER 10	098	US	25 MAR	POSITION UNCERTAIN										
NU 1	EXPLORER 11	107	US	27 APR	107.9	28.79	1768	492							
OMICRON 1	TRANSIT 4A	116	US	29 JUN	103.8	66.82	993	886							
OMICRON 2	INJUN-SR-3	117	US	29 JUN	103.8	66.82	998	882							
OMICRON 3-206**	METAL OBJECTS		US	29 JUN											
RHO 1	TIROS 3	162	US	12 JUL	100.4	47.92	828	727							
										\$54\$324\$150\$400					

OBJECTS IN ORBIT

OBJECT	CODE NAME	CATALOGUE NUMBER	SOURCE	LAUNCH	NODAL PERIOD	INCLI- NATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)
1961 LAUNCHES (CONT'D)									
RHO 2	ROCKET BODY	165	US	12 JUL	100.3	47.89	809	739	
RHO 3	METAL OBJECT	166	US	12 JUL	98.8	47.93	799	607	
RHO 4	METAL OBJECT	167	US	12 JUL	102.0	47.85	931	774	
SIGMA 1	MIDAS 3	163	US	12 JUL	161.5	91.23	3599	3292	
SIGMA 3	METAL OBJECT	188	US	12 JUL	161.1	91.16	3552	3309	
SIGMA 4	METAL OBJECT	196	US	12 JUL	161.9	91.22	3583	3341	
UPSILON 1	EXPLORER 12	170	US	16 AUG	CURRENT ELEMENTS NOT MAINTAINED				
A DELTA 1	MIDAS 4	192	US	21 OCT	166.0	95.80	3761	3492	
A DELTA 3	METAL OBJECT	194	US	21 OCT	165.6	95.81	3733	3489	
A DELTA 4	METAL OBJECT	195	US	21 OCT	166.4	95.84	3793	3494	
A ETA 1	TRANSIT 4B	202	US	15 NOV	105.8	32.43	1101	957	
A ETA 2	TRAAC	205	US	15 NOV	105.8	32.42	1111	949	
A ETA 3	ROCKET BODY	204	US	15 NOV	105.6	32.41	1100	946	
1962 LAUNCHES									
ALPHA 1	RANGER 3	221	US	26 JAN	HELIOCENTRIC ORBIT				
ALPHA 2	ROCKET BODY	222	US	26 JAN	HELIOCENTRIC ORBIT				
BETA 1	TIROS 4	226	US	8 FEB	100.4	48.32	843	709	
BETA 2	ROCKET BODY	227	US	8 FEB	101.4	48.12	941	704	
BETA 3	METAL OBJECT	228	US	8 FEB	99.5	48.43	759	706	
BETA 4	METAL OBJECT	229	US	8 FEB	100.3	48.30	846	698	
ZETA 1	ORB. SOL. OBS. 1	255	US	7 MAR	96.0	32.83	580	553	
ZETA 2	ROCKET BODY	257	US	7 MAR	96.0	32.83	585	547	
KAPPA 1		271	US	9 APR	153.0	86.63	3381	2815	
KAPPA 3		273	US	9 APR	152.6	86.67	3365	2801	
KAPPA 4		274	US	9 APR	153.3	86.67	3421	2805	
MU 2	ROCKET BODY	282	US	23 APR	HELIOCENTRIC ORBIT				
OMICRON 1	ARIEL 1	285	US/UK	26 APR	100.5	53.87	1178	385	
OMICRON 2	ROCKET BODY	288	US	26 APR	100.4	53.85	1169	383	

OBJECT	CODE NAME	CATALOGUE NUMBER	OBJECTS IN ORBIT				APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)	
			SOURCE	LAUNCH	NODAL PERIOD	INCLI- NATION				
1962 LAUNCHES (CONT'D)										
A ALPHA 1	TIROS 5	309	US	19 JUN	100.5	58.12	969	593		
A ALPHA 2	ROCKET BODY	311	US	19 JUN	100.4	58.11	959	595		
A ALPHA 3	METAL OBJECT	312	US	19 JUN	101.7	58.22	1082	601		
A ALPHA 4	METAL OBJECT	313	US	19 JUN	99.1	57.99	851	580		
A EPSILON 1	TELSTAR 1	340	US	10 JUL	157.8	44.83	5644	943		
A EPSILON 2	ROCKET BODY	341	US	10 JUL	157.6	44.77	5647	927		
A OMICRON 1		369	US	23 AUG	99.5	98.70	860	615		
A OMICRON 2		370	US	23 AUG	98.2	98.64	752	599		
A OMICRON 3		378	US	23 AUG	100.8	98.71	973	622		
A OMICRON 4		388	US	23 AUG	99.5	98.69	854	619		
A RHO 1	MARINER 2	374	US	27 AUG	HELIOCENTRIC ORBIT					
A RHO 2	ROCKET BODY	375	US	27 AUG	HELIOCENTRIC ORBIT					
A PSI 1	TIROS 6	397	US	18 SEP	98.7	58.33	714	682		
A PSI 2	ROCKET BODY	398	US	18 SEP	98.7	58.32	709	680		
A PSI 3	METAL OBJECT	399	US	18 SEP	99.4	58.43	776	682		
A PSI 4	METAL OBJECT	400	US	18 SEP	98.0	58.20	688	640		
B ALPHA 1	ALOUETTE	424	CANADA	29 SEP	105.5	80.48	1037	999	\$136.593\$136.077	
B ALPHA 2	ROCKET BODY	426	US	29 SEP	105.4	80.48	1026	1004		
B ALPHA 3	METAL OBJECT	510	US	29 SEP	105.4	80.53	1025	1000		
B ALPHA 4	METAL OBJECT	511	US	29 SEP	105.5	80.45	1046	989		
B GAMMA 1	EXPLORER 14	432	US	2 OCT	CURRENT ELEMENTS NOT MAINTAINED					
B GAMMA 2#	ROCKET BODY	NNA	US	2 OCT	CURRENT ELEMENTS NOT MAINTAINED					
B ETA 1	RANGER 5	439	US	18 OCT	HELIOCENTRIC ORBIT					
B ETA 2	ROCKET BODY	440	US	18 OCT	HELIOCENTRIC ORBIT					
B KAPPA 1		444	US	27 OCT	129.5	71.39	3982	209		
B LAMBDA 1	EXPLORER 15	445	US	27 OCT	312.1	18.04	17406	307		
B LAMBDA 2#	ROCKET BODY	NNA	US	27 OCT	INSUFFICIENT OBSERVATIONS					
B MU 1	ANNA 1B	446	US	31 OCT	107.9	50.16	1183	1076	\$162\$324	

OBJECTS IN ORBIT

<u>OBJECT</u>	<u>CODE NAME</u>	<u>CATALOGUE NUMBER</u>	<u>SOURCE</u>	<u>LAUNCH</u>	<u>NODAL PERIOD</u>	<u>INCLI- NATION</u>	<u>APOGEE Km.</u>	<u>PERIGEE Km.</u>	<u>TRANSMITTING FREQ. (MC/S)</u>
1962 LAUNCHES (CONT 'D)									
B MU 2	ROCKET BODY	447	US	31 OCT	107.6	50.18	1169	1064	
B NU 3		450	USSR	1 NOV	HELIOCENTRIC ORBIT				
B TAU 1		502	US	13 DEC	108.1	70.37	2020	232	
B TAU 2	INJUN 3	504	US	13 DEC	111.8	70.38	2376	237	
B TAU 4		508	US	13 DEC	102.9	70.34	1570	225	
B TAU 5		513	US	13 DEC	107.7	70.32	2012	226	
B TAU 6		520	US	13 DEC	110.9	70.38	2306	230	
B UPSILON 1	RELAY 1	503	US	13 DEC	185.1	47.53	7437	1321	\$136.140;136.620
B UPSILON 2	ROCKET BODY	515	US	13 DEC	184.8	47.52	7420	1321	
B CHI 1	EXPLORER 16	506	US	16 DEC	104.4	52.01	1174	755	
B PSI 1	TRANSIT 5A	509	US	19 DEC	99.1	90.65	733	698	
B PSI 2		514	US	19 DEC	97.7	90.75	728	570	
B PSI 3		519	US	19 DEC	99.1	90.65	735	695	
B PSI 4		523	US	19 DEC	100.2	90.50	837	701	
1963 LAUNCHES									
1963 03A		527	US	16 JAN	94.4	81.89	522	463	
1963 04A	SYNCOM 1	553	US	14 FEB	CURRENT ELEMENTS NOT MAINTAINED				
1963 04B	ROCKET BODY	532	US	14 FEB	CURRENT ELEMENTS NOT MAINTAINED				
1963 05A		533	US	19 FEB	97.7	100.48	797	501	
1963 05B		534	US	19 FEB	97.7	100.48	798	501	
1963 05C		535	US	19 FEB	96.9	100.49	744	475	
1963 05D		536	US	19 FEB	98.3	100.49	845	515	
1963 08B		566	USSR	2 APR	BARYCENTRIC ORBIT				
1963 09A	EXPLORER 17	564	US	3 APR	94.5	57.60	741	243	
1963 13A	TELSTAR 2	574	US	7 MAY	225.3	42.77	10815	957	136.050

OBJECTS IN ORBIT

<u>OBJECT</u>	<u>CODE NAME</u>	<u>CATALOGUE NUMBER</u>	<u>SOURCE</u>	<u>LAUNCH</u>	<u>NODAL PERIOD</u>	<u>INCLI- NATION</u>	<u>APOGEE Km.</u>	<u>PERIGEE Km.</u>	<u>TRANSMITTING FREQ. (MC/S)</u>
1963 LAUNCHES (CONT'D)									
1963 13B	ROCKET BODY	575	US	7 MAY	225.1	42.79	10793	963	
1963 14A		574	US	9 MAY	166.4	87.30	3683	3608	
1963 14B		579	US	9 MAY	166.4	87.76	3974	3319	
1963 14C		608	US	9 MAY	166.4	87.35	3663	3628	
1963 14D		589	US	9 MAY	CURRENT	ELEMENTS NOT MAINTAINED			
1963 14E		602	US	9 MAY	166.1	87.36	3644	3618	
1963 14F		628	US	9 MAY	166.8	87.35	3680	3642	
1963 14G		629	US	9 MAY	166.4	87.35	3675	3615	
1963 14H		702	US	9 MAY	166.4	87.37	3650	3640	
1963 17A		580	USSR	22 MAY	91.4	48.96	443	236	
1963 17C		582	USSR	22 MAY	92.6	49.18	492	310	
1963 22A		594	US	16 JUN	99.7	90.01	758	733	\$150\$400
1963 22B		603	US	16 JUN	99.7	90.02	759	731	
1963 22C		610	US	16 JUN	101.2	90.25	892	743	
1963 22D		611	US	16 JUN	98.1	89.85	769	572	
1963 24A	TIROS 7	604	US	19 JUN	97.4	58.24	650	622	\$136.234\$136.922
1963 24B	ROCKET BODY	605	US	19 JUN	97.3	58.24	642	621	
1963 24C	METAL OBJECT	606	US	19 JUN	97.9	58.37	683	631	
1963 24D	METAL OBJECT	607	US	19 JUN	96.9	58.08	644	575	
1963 25B		614	US	27 JUN	132.3	82.12	4104	339	
1963 26A	RESEARCH SATELLITE FOR GEOPHYSICS	612	US	28 JUN	102.0	49.76	1294	416	
1963 27A		613	US	29 JUL	94.7	82.32	523	485	
1963 30A		622	US	19 JUL	167.8	88.43	3725	3680	
1963 30B		635	US	19 JUL	167.8	88.37	3726	3673	
1963 30C		630	US	19 JUL	167.5	88.43	3717	3659	
1963 30D		624	US	19 JUL	167.8	88.32	4323	3076	
1963 30E		631	US	19 JUL	168.3	88.43	3778	3661	

OBJECTS IN ORBIT

<u>OBJECT</u>	<u>CODE NAME</u>	<u>CATALOGUE NUMBER</u>	<u>SOURCE</u>	<u>LAUNCH</u>	<u>NODAL PERIOD</u>	<u>INCLI- NATION</u>	<u>APOGEE Km.</u>	<u>PERIGEE Km.</u>	<u>TRANSMITTING FREQ. (MC/S)</u>
1963 LAUNCHES (CONT'D)									
1963 31A	SYNCOM 2	634	US	26 JUL	1438.0	32.25	35863	35787	\$136.468\$136.980 \$1814.069 \$1815.794 \$1820.177
1963 31B	ROCKET BODY	625	US	26 JUL	CURRENT	ELEMENTS NOT MAINTAINED			
1963 38A		669	US	28 SEP	107.1	89.90	1117	1070	
1963 38B		670	US	28 SEP	107.4	89.91	1134	1078	
1963 38C		671	US	28 SEP	107.3	89.91	1134	1076	
1963 38D		672	US	28 SEP	107.3	89.93	1140	1169	
1963 38E		745	US	28 SEP	107.1	89.94	1117	1068	
1963 39A		674	US	17 OCT	6481.9	38.06	116322	101237	
1963 39B		675	US	17 OCT	2319.4	35.90	102371	953	
1963 39C		692	US	17 OCT	6595.5	37.04	116483	103761	
1963 42B		682	US	29 OCT	91.2	89.99	397	276	
1963 43A	POLYOT 1	683	USSR	1 NOV	102.3	58.95	1394	343	
1963 43B		684	USSR	1 NOV	100.4	58.64	1219	336	
1963 43C		685	USSR	1 NOV	97.1	58.96	944	301	
1963 43D		686	USSR	1 NOV	99.9	59.80	1175	328	
1963 46A	EXPLORER 18 CENTAUR 2	693	US	27 NOV	5603.8	36.70	192566	3691	
1963 47A		694	US	27 NOV	107.8	30.37	1767	481	136.111
1963 47B		696	US	27 NOV	107.2	30.09	1619	576	
1963 47C		697	US	27 NOV	107.5	30.08	1630	586	
1963 47D		698	US	27 NOV	108.0	29.90	1659	609	
1963 47E		699	US	27 NOV	108.6	30.45	1749	575	
1963 47F		700	US	27 NOV	108.7	30.47	1755	571	
1963 47G		701	US	27 NOV	107.8	30.00	1644	606	
1963 47H		739	US	27 NOV	105.9	30.41	1584	486	
1963 49A		703	US	5 DEC	106.8	89.96	1095	1064	
1963 49B		704	US	5 DEC	107.1	89.96	1116	1074	\$150\$400

OBJECTS IN ORBIT

<u>OBJECT</u>	<u>CODE NAME</u>	<u>CATALOGUE NUMBER</u>	<u>SOURCE</u>	<u>LAUNCH</u>	<u>NODAL PERIOD</u>	<u>INCLI- NATION</u>	<u>APOGEE Km.</u>	<u>PERIOD Km.</u>	<u>TRANSMITTING FREQ. (MC/S)</u>
1963 LAUNCHES (CONT'D)									
1963 49C		705	US	5 DEC	107.1	89.96	1121	1067	
1963 49D		706	US	5 DEC	107.1	89.96	1122	1061	
1963 49E		715	US	5 DEC	107.1	89.97	1115	1072	
1963 49F		753	US	5 DEC	107.1	89.97	1123	1066	
1963 53A	EXPLORER 19	714	US	19 DEC	115.4	78.63	2320	633	
1963 53B		721	US	19 DEC	115.9	78.59	2398	592	
1963 53C		722	US	19 DEC	115.8	78.59	2384	601	
1963 53D		723	US	19 DEC	115.9	78.59	2393	602	
1963 53E		724	US	19 DEC	115.9	78.62	2387	611	
1963 53F		725	US	19 DEC	115.8	78.60	2380	603	
1963 53G		726	US	19 DEC	115.8	78.61	2383	600	
1963 53H		732	US	19 DEC	115.8	78.59	2388	597	
1963 54A	TIROS 8	716	US	21 DEC	99.4	58.51	752	704	\$136.233\$136.924
1963 54B		717	US	21 DEC	99.3	58.52	745	705	
1963 54C		720	US	21 DEC	101.1	58.48	919	700	
1963 54D		736	US	21 DEC	97.7	58.50	714	582	
1964 LAUNCHES									
1964 01A		727	US	11 JAN	103.4	69.92	932	913	
1964 01B	GGSE	728	US	11 JAN	103.4	69.91	936	910	
1964 01C	EGRS	729	US	11 JAN	103.4	69.91	932	912	136.804
1964 01D	SOLAR RAD.	730	US	11 JAN	103.5	69.92	935	910	136.887
1964 01E		731	US	11 JAN	103.5	69.92	935	910	
1964 02A		733	US	19 JAN	101.3	99.08	846	795	
1964 02B		734	US	19 JAN	101.3	99.08	828	812	
1964 02C		735	US	19 JAN	101.3	99.08	840	804	
1964 03A	RELAY 2	737	US	21 JAN	194.7	46.32	7412	2087	136.621\$136.142

OBJECTS IN ORBIT

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1964 LAUNCHES (CONT'D)									
1964 03B		738	US	21 JAN	194.8	46.32	7415	2090	
1964 04A	ECHO 2	740	US	25 JAN	108.5	81.50	1293	1023	136.021;136.170
1964 04B		741	US	25 JAN	108.9	81.51	1310	1045	
1964 04C		742	US	25 JAN	108.8	81.49	1306	1042	
1964 04D		743	US	25 JAN	108.8	81.55	1310	1038	
1964 04E		749	US	25 JAN	97.8	81.57	1012	293	
1964 05A	SATURN 5	744	US	25 JAN	93.4	31.45	629	249	
1964 06A	ELEKTRON 1	746	USSR	30 JAN	169.3	60.89	7119	400	
1964 06B	ELEKTRON 2	748	USSR	30 JAN	1356.3	59.03	67474	947	
1964 06C		750	USSR	30 JAN	168.1	60.87	7019	403	
1964 06D		751	USSR	30 JAN	1384.1	59.23	68551	973	
1964 11A		759	US	28 FEB	94.6	82.08	511	490	
1964 11B		760	US	28 FEB	93.7	82.06	461	448	
1964 11C		761	US	28 FEB	93.8	82.08	479	454	
1964 15A	ARIEL 2	771	US/UK	27 MAR	100.6	51.68	1284	285	136.557
1964 15B		775	US	27 MAR	100.2	51.66	1243	289	
1964 15C		847	US	27 MAR	103.8	51.39	1507	371	
1964 16D		785	USSR	2 APR	HELIOCENTRIC ORBIT				
1964 19B	POLYOT 2	784	USSR	12 APR	91.9	58.04	442	297	
1964 26A		801	US	4 JUN	103.1	90.50	951	860	\$150\$400
1964 26B		805	US	4 JUN	103.9	90.19	979	907	
1964 26C		806	US	4 JUN	102.3	90.82	952	786	
1964 26D		809	US	4 JUN	103.1	90.50	950	861	
1964 30A		811	US	13 JUN	90.9	114.99	336	307	
1964 31A		812	US	18 JUN	101.6	99.78	839	830	
1964 31B		813	US	18 JUN	101.6	99.79	840	830	

OBJECTS IN ORBIT

<u>OBJECT</u>	<u>CODE NAME</u>	<u>CATALOGUE NUMBER</u>	<u>SOURCE</u>	<u>LAUNCH</u>	<u>NODAL PERIOD</u>	<u>INCLI- NATION</u>	<u>APOGEE Km.</u>	<u>PERIGEE Km.</u>	<u>TRANSMITTING FREQ. (MC/S)</u>
1964 LAUNCHES (CONT'D)									
1964 31C		815	US	18 JUN	101.6	99.80	843	825	
1964 35A		824	US	2 JUL	94.9	82.09	529	497	
1964 38A	ELECTRON 3	829	USSR	10 JUL	168.1	60.81	7032	395	
1964 38B	ELECTRON 4	830	USSR	10 JUL	1313.8	59.89	66071	646	
1964 38C		831	USSR	10 JUL	168.5	60.80	7060	398	
1964 38D		832	USSR	10 JUL	1341.3	60.01	67171	649	
1964 40A		836	US	17 JUL	6091.5	39.13	105169	103048	
1964 40B		837	US	17 JUL	6070.5	40.90	113125	94584	
1964 40C		838	US	17 JUL	2349.9	38.30	104018	319	136.771
1964 41B		843	US	28 JUL	BARYCENTRIC ORBIT				
1964 42A	COSMOS 36	844	USSR	30 JUL	90.0	48.99	316	229	
1964 45B		851	US	14 AUG	127.1	95.70	3722	270	
1964 46D		856	USSR	18 AUG	90.8	56.09	401	197	\$136.470\$136.980
1964 47A	SYNCOM 3	858	US	19 AUG	1436.5	.07	35799	35790	\$1820.177
									\$1815.794
									\$1814.931
1964 47B		862	US	19 AUG	694.5	16.80	38084	1113	
1964 48A		861	US	21 AUG	90.5	114.98	309	287	
1964 49D	COSMOS 41	869	USSR	22 AUG	714.5	65.73	39606	589	
1964 49E		898	USSR	22 AUG	716.3	65.73	39787	498	
1964 50A	COSMOS 42	864	USSR	22 AUG	96.5	48.97	953	226	
1964 50B		866	USSR	22 AUG	95.6	48.97	867	220	
1964 50C	COSMOS 43	867	USSR	22 AUG	96.4	48.97	947	225	\$136.326;\$136.350
1964 51A	EXPLORER 20	870	US	25 AUG	103.9	79.91	1018	872	\$136.680

OBJECTS IN ORBIT

<u>OBJECT</u>	<u>CODE NAME</u>	<u>CATALOGUE NUMBER</u>	<u>SOURCE</u>	<u>LAUNCH</u>	<u>NODAL PERIOD</u>	<u>INCLI- NATION</u>	<u>APOGEE Km.</u>	<u>PERIGEE Km.</u>	<u>TRANSMITTING FREQ. (MC/S)</u>
1964 LAUNCHES (CONT'D)									
1964 51B		871	US	25 AUG	103.9	79.91	1014	870	
1964 51C		873	US	25 AUG	103.6	79.83	990	871	
1964 51D		874	US	25 AUG	103.6	79.83	1030	833	
1964 51E		875	US	25 AUG	103.6	79.82	1032	829	
1964 52A	NIMBUS 1	872	US	28 AUG	98.4	98.67	935	427	136.499
1964 52B		878	US	28 AUG	98.4	98.66	936	427	
1964 53A	COSMOS 44	876	USSR	28 AUG	99.5	65.09	871	601	
1964 53B		877	USSR	28 AUG	99.6	65.10	792	687	
1964 54A	OGO 1	879	US	5 SEP	3839.9	32.34	148408	1289	\$136.200\$400.250 \$400.850 136.142
1964 60A	EXPLORER 21	889	US	4 OCT	2080.3	33.72	94427	777	
1964 63A		893	US	6 OCT	106.3	89.92	1085	1030	
1964 63B		897	US	6 OCT	106.6	89.92	1088	1053	
1964 63C		900	US	6 OCT	106.6	89.93	1088	1051	
1964 63D		901	US	6 OCT	106.6	89.92	1088	1055	
1964 63E		902	US	6 OCT	106.6	89.93	1088	1054	
1964 63F		903	US	6 OCT	106.6	89.91	1085	1058	
1964 64A	EXPLORER 22	899	US	10 OCT	104.8	79.71	1080	889	\$136.171\$162\$324 \$20\$40\$41\$360
1964 64B		907	US	10 OCT	104.7	79.71	1077	891	
1964 64C		976	US	10 OCT	104.1	79.32	1059	844	
1964 64D		977	US	10 OCT	105.5	80.07	1122	916	
1964 68B		914	US	23 OCT	90.0	95.48	277	268	
1964 69A	COSMOS 49	913	USSR	24 OCT	91.5	48.95	435	258	
1964 69B		915	USSR	24 OCT	90.0	48.94	308	227	
1964 72A		922	US	4 NOV	95.0	82.05	526	511	
1964 72B		925	US	4 NOV	94.9	82.04	522	508	
1964 72C		926	US	4 NOV	94.8	82.06	515	508	
1964 72D		927	US	4 NOV	94.9	82.03	516	509	
1964 73A	MARINER 3	923	US	5 NOV	HELIOCENTRIC ORBIT				

OBJECTS IN ORBIT

<u>OBJECT</u>	<u>CODE NAME</u>	<u>CATALOGUE NUMBER</u>	<u>SOURCE</u>	<u>LAUNCH</u>	<u>NODAL PERIOD</u>	<u>INCLI- NATION</u>	<u>APOGEE Km.</u>	<u>PERIGEE Km.</u>	<u>TRANSMITTING FREQ. (MC/S)</u>
1964 LAUNCHES (CONT'D)									
1964 74A	EXPLORER 23	924	US	6 NOV	99.2	51.95	979	464	\$136.080\$136.857
1964 76A	EXPLORER 24	931	US	21 NOV	116.1	81.36	2484	530	136.710
1964 76B	EXPLORER 25	932	US	21 NOV	116.2	81.36	2494	530	136.292\$136.860
1964 76C		933	US	21 NOV	116.2	81.37	2493	534	
1964 76D		934	US	21 NOV	116.3	81.35	2499	535	
1964 76E		935	US	21 NOV	116.3	81.36	2503	531	
1964 76F		936	US	21 NOV	116.2	81.27	2475	549	
1964 76G		937	US	21 NOV	116.4	81.37	2497	545	
1964 76H		939	US	21 NOV	115.9	81.31	2456	540	
1964 76I		940	US	21 NOV	116.2	81.36	2487	532	
1964 76J		941	US	21 NOV	116.1	81.35	2496	518	
1964 76K		960	US	21 NOV	116.4	81.34	2503	539	
1964 77A	MARINER 4	938	US	28 NOV	HELIOCENTRIC ORBIT				
1964 77B		942	US	28 NOV	HELIOCENTRIC ORBIT				
1964 78C	ZOND 2	945	USSR	30 NOV	HELIOCENTRIC ORBIT				
1964 80A	COSMOS 51	947	USSR	9 DEC	92.4	48.76	524	257	
1964 80B		948	USSR	9 DEC	92.1	48.75	504	251	
1964 83A		953	US	13 DEC	106.0	89.99	1065	1020	
1964 83B		956	US	13 DEC	106.3	89.99	1084	1029	
1964 83C		959	US	13 DEC	106.3	89.99	1084	1031	136.561\$162\$234
1964 83D		965	US	13 DEC	106.3	89.99	1086	1029	\$150\$400
1964 83E		966	US	13 DEC	106.3	89.98	1086	1028	
1964 83F		967	US	13 DEC	106.3	89.99	1086	1027	
1964 84A	SAN MARCO	957	ITALY	15 DEC	94.3	37.78	756	202	\$20;136.738\$136.536
1964 84B		958	US	15 DEC	90.3	37.76	411	186	
1964 84C		962	US	15 DEC	COMPUTATIONS IN PROGRESS				

OBJECTS IN ORBIT

<u>OBJECT</u>	<u>CODE NAME</u>	<u>CATALOGUE NUMBER</u>	<u>SOURCE</u>	<u>LAUNCH</u>	<u>NODAL PERIOD</u>	<u>INCLI- NATION</u>	<u>APOGEE Km.</u>	<u>PERIGEE Km.</u>	<u>TRANSMITTING FREQ. (MC/S)</u>
1964 LAUNCHES (CONT'D)									
1964 86A	EXPLORER 26	963	US	21 DEC	456.3	20.14	26199	310	136.275
1965 LAUNCHES									
1965 02A		972	US	15 JAN	90.3	74.96	383	182	
1965 03A		973	US	19 JAN	97.6	98.77	833	462	
1965 03B		974	US	19 JAN	97.6	98.81	824	462	
1965 03C		975	US	19 JAN	97.7	98.66	838	461	
1965 04A	TIROS 9	978	US	22 JAN	119.2	96.41	2580	709	\$136.230\$136.920
1965 04B		979	US	22 JAN	119.3	96.41	2593	707	
1965 06A	COSMOS 53	983	USSR	30 JAN	98.59	48.72	1176	224	
1965 06B		984	USSR	30 JAN	98.60	48.72	1178	232	
1965 06C		985	USSR	30 JAN	97.59	48.72	1086	225	
1965 06D		986	USSR	30 JAN	97.87	48.72	1112	227	

DECAYED OBJECTS

PLEASE ADD THE FOLLOWING TO THE DECAYED OBJECTS LIST:

<u>OBJECT</u>	<u>CODE NAME</u>	<u>CATALOGUE NUMBER</u>	<u>SOURCE</u>	<u>LAUNCH</u>	<u>DECAY</u>
1964 85A		961	US	19 DEC	14 JAN 65
1965 01A	COSMOS 52	968	USSR	11 JAN	19 JAN 65
1965 01B		969	USSR	11 JAN	29 JAN 65
1965 02B		982	US	15 JAN	30 JAN 65
1965 05A		980	US	23 JAN	28-29 JAN 65
1965 05B		981	US	23 JAN	25 JAN 65

* APHELION PERIHELION IN ASTRONOMICAL UNITS, INCLINATION TO ECLIPTIC.
 ** TWO HUNDRED AND FOUR METAL OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH
 1961 OMICRON 1 AND 1961 OMICRON 2. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE
 FOUND IN THE DECAYED OBJECTS LIST.
 \$ TRANSMITTING ON COMMAND ONLY.
 & TRANSMITTING WHEN IN SUNLIGHT ONLY.
 # NO CATALOGUE NUMBER ASSIGNED.